Hydrochemical Zonality of the Artesian Waters of the Near- 20-118-4-46/61
-Dobrudja Downwarping and of the Adjoining Slope of the Russian Platform

SUBMITTED: June 5, 1957

AVAILABLE: Library of Congress

Card 4/4

VZNUZDAYEV, S.T.

Underground waters of lower and Middle Sarmatian deposits in the southern part of the Dniester-Prut interfluve in connection with the estimation of the outlook for the presence of oil and gas in the area. Izv. Mold. fil. AN SSSR no.6:3-15 '61
(MIRA 17:7)

Recent data on underground waters and tectonic dislocations in Cambrian and Riphean formations of the Moldavian section of the Dniester Valley. Ibid.:35-46

VZNUZDAYEV, S.T., starshiy nauchnyy sotrudnik

Conservation of underground water in Moldavia. Okhr.prir.Mold. no.1:94-97 '60. (MIRA 15:2)

1. Institut geologii i poleznykh iskopayemykh.
(Moldavia—Water, Underground)

VZHUZDAYEV, Sergey Timofeyevich; GARMONOV, I.V., doktor geol.-min. nauk, otv.red.; LADYCHUK, L.P., red.izd-va; KASHINA, P.S., tekhn.red.

[Ground water of the lower Dniester Valley] Gruntovye vody Nizhnego Pridnestrov'ia. Moskva, Izd-vo Akad.nauk SSSR, 1959. 162 p. (MIRA 12:6)
(Dniester Valley--Water, Underground)

USSR/~~Geophysics~~ Geology - Limestones 1 Jun 53

VZNUZDAYEV, S.T.

"New Data on the Sarmation Reef Limestones," S. T. Vznuzdayev, Moldavian Affiliate of Acad Sci USSR

DAN SSSR, Vol 90, No 4, pp 635-637

States that reef limestones of Grigoriopol' and Bul'bokilie in layer of coquina and oolitic limestones of the middle Sarmatian. Thickness of reef formations in Grigoriopol' reaches 10-15 m, and in Bul'bok the formations have been discovered only down to a depth of not more than 1 m. Presented by Acad Belyankin, 1 Apr 53.

VZNUZDAYEV, S.T.; BELYANKIN, D.S., akademik.

New data on Sarmatian reef limestone in Moldavia. Dokl.AN SSSR 90 no.4: 635-637 Je '53. (MLRA 6:5)

1. Akademiya Nauk SSSR (for Belyankin). 2. Moldavskiy filial Akademii nauk SSSR (for Vznuzdayev). (Moldavia--Limestone)

VZHUZDAYEV, S.T. (Kishinev)

Weathering caves in the Dniester valley. Priroda 45 no.2:113-114 F '56. (MLRA 9:5)

1. Moldavskiy filial Akademii nauk SSSR.
(Dniester Valley--Caves)

ALEKSANDROV, Nikolay Nikolayevich; VZNUZDAYEV, Sergey Vasil'yevich; DVORYANKOV, Sergey Mikhaylovich; KEMNITS, Yuriy Vladimirovich; MASLOV, Aleksey Vasil'yevich; MURASHEV, Sergey Iustinovich; SOBERAYSKIY, Konstantin Stanislavovich; MURASHEV, S.A., redaktor; KHROMCHENKO, F.I., redaktor izdatel'stva; KUZ'MIN, G.M., tekhnicheskiy redaktor

[Precise calculations in topographical surveys of irrigation districts] Raschety tochnosti topograficheskikh s"emok v raionakh oroshcheniia. Moskva, Izd-vo geodezicheskoi lit-ry, 1956. 48 p. (MLRA 10:1)
(Topographical surveying)
(Irrigation)

SOBERAYSKIY, Konstantin Stanislavovich; SIROTA, Ivan Fedorovich; BATRAKOV, Yuriy Grigor'yevich; VZNUZDAYEV, Sergey Vasil'yevich; DVORYANKOV, Sergey Mikhaylovich; MASLOV, A.V., red.; VASIL'YEVA, V.I., red.izd-va; ROMANOVA, V.V., tekhn. red.

[Geodesic works for the construction of irrigation and drainage systems] Geodezicheskie raboty dlia stroitel'stva orositel'nykh i osushitel'nykh sistem. [By] K.S.Soberaiskii i dr. Moskva, Gosgeoltekhizdat, 1963. 203 p. (MIRA 16:12)

(Surveying) (Irrigation) (Drainage)

AUTHOR: Vznuzdayev, S. V. 6-58-3-14/16

TITLE: A Volute-Compasses Nomogram for the Determination of Elevations in Photographs on a Scale of 1 : 2000 (Spiral'no-tsirkul'naya nomogramma dlya opredeleniya prevyshenly pri s"yemke v masshtabe 1 : 2000)

PERIODICAL: Geodeziya i Kartografiya, 1958, Nr 3, pp. 74-76 (USSR)

ABSTRACT: Among the rational means for the computation of elevations are some nomograms and among these first of all the volute-compasses nomogram. Such a nomogram is given and described here. It serves for the determination of elevations in plane-table photographs on a scala of 1 : 2000. In the case of angles of tilt up to 3° and distances up to 180 m the elavations can be determined with an accuracy of ± 1,1 cm. At angles of tilt of from 3 to 6° the elevations are determined according to half of the measured angle sv. In this case the mean error amounts to up to ± 2,2 cm. If necessary the elevations can

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A Volute-Compasses Nomogram for the Determination of Elevations in Photographs on a Scale of 1 : 2000 6-58-3-14/16

also be determined for angles of tilt of from 6 to 12°. Here a quarter of the measured angle ν is used (the error is about ± 5 cm). The nomogram is constructed according to the formula $h = \frac{1}{2} s_1 \sin 2\nu$. s_1 denotes the distance determined according to the range finder, ν - the angle of tilt of the sighting ray. A description for handling the nomogram is given. Such nomograms can also be constructed for photographs of 1 : 5000 and 1 : 10 000. The mean deviation square at 1 : 10 000 is ± 5 cm. There is 1 figure.

AVAILABLE: Library of Congress

1. Elevation--Determination 2. Compasses--Applications

Card 2/2

VZNUZDAYEV, S.V., kandidat tekhnicheskikh nauk.

Tolerances in the control of contour lines on 1:2000 scale plans. (MIRA 10:8)
Geod. i kart. no.3:51-54 Mr '57.
(Topographical drawing)

VZNUZDAYEV, S. V.

VZNUZDAYEV, S. V. - "The accuracy of horizontals on plans to a scale of 1:2,000 for the planning of populated rural places", Moscow, 1955. Moscow Inst of land Management. (Dissertation for the Degree of Candidate of Technical Sciences).

SO: Knizhnaya Letopis' No. 46, 12 November 1955. Moscow

VZNUZDAYEV, S. V.

"Problem of Accuracy of Relief Representation by Horizontals on Maps of 1 : 2,000 Scale".
Tr. Mosk. in-ta inzh. zemleustroystva, No. 1, pp 89-96, 1954.

The effect of uneveness of location on the accuracy of horizontals of topographic maps of 1 : 2,000 scale is investigated. The mean square of horizontals of various surfaces are determined. The maximum error is found for a potato field and the least for a meadow. (RZhAstr, No. 1, 1956)

SO: Sum No 884, 9 Apr 1956

KOREYEV, I.F.; VZNUZDAYEVA, A.N.; BEZRUCHENKO, Z.A., mashinist-operator

In the merchant shape rolling mill at the Kuznetsk Metallurgical Combine. Metallurg 7 no.8:34 Ag '62. (MIRA 15:9)

1. Sekretar' partiynogo byuro Kuznetskogo metallurgicheskogo kombinata (for Koreyev). 2. Predsedatel' tsekhovogo komiteta sortoprokatnogo tsekha Kuznetskogo metallurgicheskogo kombinata (for Vznuzdayeva). 3. Brigada No.1 stana 250 Kuznetskogo metallurgicheskogo kombinata (for Bezruchenko).
(Novokuznetsk—Rolling mills)

VZOROV, B.A.

Investigating the performance of a two-cycle engine with external and internal carburation. Nauch. dokl. vys. shkoly; mash. i prib. no.2:25-29 '59. (MIRA 12:12)
(Gas and oil engines--Testing)

VZOROV, B.A., aspirant

Investigating the filling of the crankcase of a two-stroke engine in case of internal and external mixing. Izv. vys. ucheb. zav.; mashinostr. no.10:133-144 '58. (MIRA 12:11)

1.Moskovskiy avtomekhanicheskiy institut.
(Gas and oil engines--Testing)

VZOROV, B.A., kand.tekhn.nauk; ADAMOVICH, A.V., kand.tekhn.nauk

Study of the temperature field of the piston of the SMD-14 engine. Trakt.i sel'khozmash. 32 no.4:13-16 Ap '62. (MIRA 15:4)

1. Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut.
(Tractors—Engines)

VZOROV, B.A., kand. tekhn. nauk

Investigating heat transmission by the piston of a motor-vehicle engine. Avt. prom. 31 no.2:1-4 F '65. (MIRA 18:3)

1. TSentral'nyy ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skiy avtomobil'nyy institut.

VZOROV, B.A., kand.tekhn.nauk; BUDYKO, Yu.I., kand.tekhn.nauk; KOGANER, V.E.; MAL'TSEV, A.V.; ZAYCHENKO, S.N.; SATAROV, V.A.; ABOLTIN, E.V.

Brief news. Avt.prom. 31 no.10:40-48 O '65. (MIRA 18:10)

VZOROV, B. A. Cand Tech Sci -- (diss) "Study of the operating process of two-cycle carburetor engines during their ~~switching~~ transfer to direct gasoline injection." Mos, 1958. 13 pp (Min of Higher Education USSR. Mos Automechanics Inst), 110 copies (KL, 52-58, 101)

VZOROV, B.A.

Mixture formation in two-cycle engines with direct fuel injection.
Avt.prom. no.10:16-19 O '58. (MIRA 11:11)

1. Moskovskiy avtomekhanicheskiy institut.
(Automobiles--Fuel systems)

ADAMOVICH, A.V., kand.tekhn.nauk; VZOROV, B.A., kand.tekhn.nauk

Forked current-collecting device for measuring the temperature of pistons. Avt.prom. no.4:23-24 Ap '60. (MIRA 13:6)

1. Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut.
(Thermocouples)

S/113/60/000/004/003/007
D249/D301

AUTHORS: Adamovich, A.V., and Vzorov, B.A., Candidates of Technical Sciences

TITLE: Forked current-collecting apparatus for measuring piston temperature

PERIODICAL: Avtomobil'naya promyshlennost', no. 4, 1960, 23-24

TEXT: Measurements of piston temperature in engines are universally undertaken with the aid of thermocouples. However, hitherto, this method has found only a limited application owing to lack of reliable current-collecting instruments. Existing instruments are applicable for engines developing not over 2500 r.p.m. For modern automobile engines which develop 4000-5000 r.p.m., these instruments are unsuitable. The organization НАМИ (NAMI) has designed an apparatus which permits measuring piston temperatures in engines having up to 5000 r.p.m. The forked apparatus, shown in Fig. 1, has no moving contacts, but is provided with fixed, stable contacts of a sliding type which do not "stick"

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at high speeds. Moreover, the short duration of the contact engagement (corresponding to 40° of the crankshaft turn) is maintained. There are 6 figures.

ASSOCIATION: NAMI

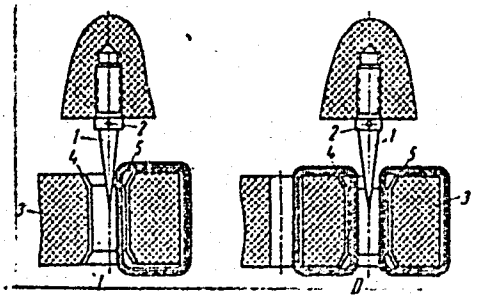

Рис. 1. Принципиальные схемы двух вариантов токосъемного вильчатого прибора.

Fig. 1. General arrangement of two variants of a current-collecting forked apparatus: Legend. 1 - contacts in the form of tapered pins made of chromel or copel; the contacts are mounted on a textolite block fastened in the piston; 2 - openings through which pass thermocouple leads that are soldered to each contact; 3 - current-collecting textolite block; 4 - rolled out steel socket made of a thin-walled steel pipe 4 mm in diameter; 5 - turns of chromel or copel wire.

AUTHOR: Vzorov, B.A. SOV-113-58-10-5/16

TITLE: Mixture Formation in a Two-Stroke Engine with Direct Fuel Injection (Smeseobrazovaniye v dvukhtaktnom dvigatele s neposredstvennym vpryskom benzina)

PERIODICAL: Avtomobil'naya promyshlennost', 1958, Nr 10, p 16 - 19 (USSR)

ABSTRACT: The author presents data and results of his experimental laboratory investigations of the mixture formation in a two-stroke engine with direct fuel injection. This data might differ during the actual exploitation of a two-stroke engine with direct fuel injection, since they depend to a considerable extent on the design of the engine. The experiments were made with a two-stroke engine of type "IZh-49" in the laboratories of the Moscow Automobile-Mechanical Institut MAMI. The fuel injection was achieved by a fuel injection pump designed by MAMI and by a nozzle copied from the Bosch nozzle as used in the West-German Goliath automobiles. The tests were conducted at different engine speeds, 2,500,

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Mixture Formation in a Two-Stroke Engine with Direct Fuel Injection

3,000, 3,600, and 4,000 rpm. The efficiency of the engine increased about 10% when using fuel injection, compared to the fuel intake thru the carburator. There are 8 graphs and 1 diagram.

ASSOCIATION: Moskovskiy avtomekhanicheskiy institut (Moscow Automobile-Mechanical Institut)

1. Fuels--Injection 2. Mixtures--Applications 3. Internal combustion engines--Performance

VZOROV, B.A., kand.tekhn.nauk

Effect of steel piston rings on the temperature of pistons. Avt. prom. 27 no. 4:14-16 Ap '61. (MIRA 14:4)

1. Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut.
(Pistons)

VZOROV, B.A., kand.tekhn.nauk

Investigating thermal stresses in parts of the cylinder piston group of the M-21 engine. Avt.prom. 28 no.3:3-7 Mr '63. (MIRA 16:3)

1. Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut.
(Motor vehicles—Engines—Cylinders) (Thermal stresses)

VZOROV, B.A., kand. tekhn. nauk

Durability of engines and ways for its increase under operating conditions. Avt. prom. 30 no.10:1-4 O '64. (MIRA 17:11)

1. TSentral'nyy ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skiy avtomobil'nyy avtomotornyy institut.

VZOROV, B.N., zasluzhennyy master sporta

How to train sprinters to avoid false starts. Opyt izuch.reg. fiziol.funk. no.3:352-354 '54. (MLRA 8:12)

1. Otdeleniye metodiki fizicheskogo vospitaniya Leningradskogo nauchno-issledovatel'skogo instituta fizicheskoy kul'tury
(RUNNING)

Vzorov, I.K. VZOROV, I.K.

USSR/ Physics - Nuclear physics

Card 1/1 Pub. 22 - 13/63

Authors : Bogachev, N.P., and Vzorov, I.K.

Title : Elastic dispersion of protons by protons with energies of 660 mev.

Periodical : Dok. AN SSSR 99/6, 931-934, Dec 21, 1954

Abstract : Results of experiments with the dispersion of protons by protons of 660 mev of energy are described. The experimental set-up of the equipment and the methods which were used are described in detail. It is indicated that the differential cross-section of 660 mev proton dispersion, is about $(2.1 \pm 0.2)\ 10^{-27}$ cm^2/spheradian, whereas for protons of 150-450 mev it is (3. 4-5) 10^{-27} cm/speradian. Eleven references; 3-USSR (1951-1954). Graphs.

Institution: The Institute of Nuclear Problems of the Acad. of Scs. of the USSR

Presented by: Academician L.A. Artsimovich, November 4, 1954

VZOROV, I. K.

USSR/Nuclear Physics - Proton reactions

Card 1/1 Pub. 22 - 20/63

Authors : Meshcheryakov, M.G., member correspondent of the Acad. of Scs. of the USSR; Neganov, B.S.; Soroko, L.M.; and Vzorov, I.K.

Title : Anomalous change in the cross section of the elastic dispersion of protons by protons of 460-660 mev

Periodical : Dok. AN SSSR 99/6, 959-961, Dec 21, 1954

Abstract : Experiments with dispersions of protons of high energies were conducted in order to clarify the observed anomalous change in the cross section of an elastic dispersion of protons by protons of 460-660 Mev. A description of these experiments is presented. Eleven references; 3-USSR (1951-1954). Diagram.

Institution: Institute of Nuclear Problems of the Acad.of Scs. of the USSR

Submitted: .....

VZOROV, I.K., ZRELOV, V.P., SHABUDIN, A.F., MESHCHERYAKOV, M.G., NEGANOV, B.S.

Energy spectra of π^+ mesons in the pp-npπ^+ reaction at 556 and 657 MeV (II/57a)
Magnetic analysis of the pp-npπ^+(I), pp-ppπ^0(II) and pp-dπ^+(III) reactions at the energy of 660 MeV (II/57b)

CERN-Symposium on High Energy Accelerators and Pion Physics.

Geneva 11-23 June 56
In. Branch #5.

VZOROV, I.K.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1417
AUTHOR MESCERJAKOV,M.G., ZRELOV,V.P., NEGANOV,B.S., VZOROV,I.K., ŠABUDIN,A.F.
TITLE The Energy Spectra of Positive Pions on the Occasion of the Reaction pp → npπ+ at 556 and 657 MeV.
PERIODICAL Žurn.eksp.i teor.fis,31, fasc.1, 45-54 (1956)
Issued: 9 / 1956 reviewed: 10 / 1956

The spectra mentioned here were investigated by magnetic analysis. Parallel to this and by the same method, the spectra of the protons emitted on the occasion of the reactions pp → npπ+ and pp → ppπ0 were also investigated, but the results obtained on this occasion are discussed in another paper.
Experimental method: The arrangement of the magnetic spectrometer and of the concrete protection with respect to the proton bundle of the 6m synchrocyclotron of the Institute for Nuclear Problems of the Academy of Science is illustrated by a drawing. The maximum strength of the magnetic field in the air gap of 10 cm width of the electromagnet used in the spectrometer attains 19.000 oersted. In the first measuring series a DEWAR vessel filled with liquid hydrogen served as a target, and in the second the spectrum of the positive pions was determined from the difference polyethylene-carbon.
Experimental results and their explanation: Measuring at 657 MeV: In this case the π-spectrum has a distinct peak corresponding to the reaction pp → dπ+. The width of the peak at half the height is ~10 MeV. The continuous spectrum of the mesons produced on the occasion of the reaction pp → npπ+ approaches the peak

Zurn.eksp.i teor.fis,31,fasc.1, 45-54(1956) CARD 2 / 2 PA - 1417

very closely. From the kinematics of the reactions $pp \rightarrow d\pi^+$ and $pp \rightarrow np\pi^+$ it follows, that in the case of this experiment the upper limit of the continuous π^+-spectrum is shifted in the direction of the peak by 2,9 MeV towards lower energies. At 657 MeV there is a marked tendency towards the emission of mesons having energies near the upper limit. The average energy of the mesons in the continuous spectrum is 220 MeV. The differential cross sections are: $d\sigma/d\omega(pp \rightarrow np\pi^+)_{24^\circ} \sim 4{,}7.10^{-27}$ cm^2/sterad and $d\sigma/d\omega(pp \rightarrow d\pi^+)_{24^\circ} = (0{,}95\pm0{,}05).10^{-27}$ cm^2/sterad. Measuring at 556 MeV: The peak corresponding to the mesons originating from the reactions $pp \rightarrow d\pi^+$ is about 227 MeV. The continuous π^+-spectrum is shifted towards higher meson energies, and the average energy in this spectrum is 165 MeV. The differential cross sections are $d\sigma/d\omega(pp \rightarrow np\pi^+)_{24^\circ} \sim 1{,}5.10^{-27}$ cm^2/sterad and $d\sigma/d\omega(pp \rightarrow d\pi^+)_{24^\circ} = (0{,}7\pm0{,}07).10^{-27}$ cm^2/sterad. The angular distribution of the mesons on the occasion of the reaction $pp \rightarrow np\pi^+$ changes only little in the case of an energy increase of from 556 to 657 MeV. The energy used in connection with these experiments, particularly at 657, sufficed in order to excite one of the colliding protons to a state with an angular momentum of 3/2 and with the isotopic spin 3/2. It may be that the production of positive pions on the occasion of the reaction $pp \rightarrow np\pi^+$ develops over an intermediary excited $P_{3/2,\ 3/2}$-state of the nucleon.

INSTITUTION: Institute for Nuclear Problems of the Academy of Science in the UssR.

Vzorov, I. K.

USSR/Nuclear Physics C-3

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 11094

Author : Meshcheryakov, M.G., Vzorov, I.K., Zrelov, V.P., Neganov, B.S., Shabudin, A.F.

Inst : Not given

Title : Formation of Charged Mesons on Beryllium and Carbon by Protons with 660 Mev Energy.

Orig Pub : Zh. eksperim. i teor. fiziki, 1956, 31, No 1, 55-62

Abstract : The method of magnetic analysis was used to measure the energy spectra of positive and negative pions, emitted in the p + Be and p + C collisions at an angle of 240 relative to the beam of the 660 Mev protons. The spectra of the positive pions have clearly pronounced maximum at 210 Mev in the laboratory system, while the number of negative pions changes insignificantly in the range from

Card 1/2

C-3

USSR/Nuclear Physics

Abs Jour : Ref Zhur - Fizika, No 5, 1957, 11094

60 to 250 Mev. It was observed that the probability of formation of positive pions in collision of protons with the protons bound in the beryllium and carbon nuclei, is at least one third the probability of formation on free protons. The maximum in the spectrum of the positive pions in the center of mass system is located near 100 Mev. The ratio of the positive and negative pion yields for beryllium and carbon was determined over the entire extent of the spectra.
The ratio total yields of the positive and negative pions for these elements is 5.3 ± 0.6 and 7.0 ± 0.8 respectively.

Card 2/2

VZOROV, I.K., MESHCHERYAKOV, M.G., ZRELOV, V.P., NEGANOV, B.S., SHABUDIN, A.F.

"ChargeddPion Production by 660 MeV Protons on Beryllium and Carbon," paper presented at CERN Symposium, 1956, appearing in Nuclear Instruments, No. 1, pp. 21-30, 1957

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1338
AUTHOR MEŠCERJAKOV, M.G., VZOROV, I.K., ZRELOV, V.P., NEGANOV, B.S. ŠABUDIN, A.F.
TITLE The Creation of Charged Mesons by 660-MeV Protons on Beryllium and Carbon.
PERIODICAL Žurn.eksp.i teor.fis, 31, fasc. 1, 55-62 (1956)
Issued: 9 / 1956 reviewed: 10 / 1956

The positive and negative pions created on the occasion of the bombardment of Be and C by protons are studied. The energy of these protons suffices to enable one of the impinging nucleons to pass into an excited state with the angular momentum 3/2 and the isotopic spin 3/2 ($P_{3/2,\ 3/2}$ state) on the occasion of nucleon-nucleon collisions, but it is not sufficient for a production of any importance of two pions by one collision.
Experimental method: The energy distribution of the pions was determined by means of a magnetic spectrometer. The pions which were emitted towards the proton bundle under an angle of 24° and had passed through the spectrometer were registered by means of a telescope consisting of three scintillation counters.
Conclusions: The creation probability of positive pions referred to a proton of the target nucleus is more than three times as small as the creation probability in free (p-p) collisions. The spectra of positive and negative pions are distinguished from one another by form and amount of the average energy of the mesons. The relative softness and the washed out character of the spectra of the negative mesons suggest the existence of a weak nucleon interaction in part

of the final states of the reaction $pn \rightarrow pp\pi^-$. On the average, about 75% of the available energy is used for the creation of a charged pion on the occasion of an elementary act of nucleon-nucleon interaction. It is particularly surprising that on the occasion with these experiments the maximum of the π^+ spectrum occurs within the same range of energy as on the occasion of experiments carried out with the proton accelerator at BROOKHAVEN at collision energies of 1720 and 2300 MeV. This result indicates that the creation of single pions on the occasion of nucleon-nucleon collisions at energies of 660 MeV as well as the creation in pairs of pions at 1720 and 2300 MeV is essentially due to the strong interaction of the meson with the nucleon in the intermediary $P_{3/2,3/2}$ state. The ratio of the yields of positive and negative pions increases with increasing energy up to from 160 to 180 MeV in the center of mass system. The ratio of the integral yields of positive and negative yields is considerably smaller than the value predicted by the theory. This theory presupposed the independence of the creation and of the decay of the intermediary state $P_{3/2,3/2}$.

INSTITUTION: Institute for Nuclear Problems of the Academy of Science in the USSR.

VZOROV, I.K.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1424
AUTHOR MEŠČERJAKOV,M.G., NEGANOV,B.S., VZOROV,I.K., ZRELOV,V.P.,SABUDIN,A.F.
TITLE The Magnetic Analysis of the Reactions $pp \rightarrow np\pi^+$(I), $pp \rightarrow pp\pi^0$ (II) and $pp \rightarrow d\pi^+$(III) at an Energy of 660 MeV.
PERIODICAL Dokl.Akad.Nauk,109, fasc.3, 499-502 (1956)
Issued: 9 / 1956 reviewed: 10 / 1956

For the purpose of the determination of further data concerning the character of the production processes of positive pions on the occasion of (p-p) collisions the authors studied the momentum spectra and angular distributions of the secondary protons emitted on the occasion of the reactions I and II at 660 MeV. Independent interest was caused by the possibility of separating (for the purpose of a subsequent determination of their degree of polarization) the deuterons produced on the occasion of reaction III from the total flux of secondary particles. In connection with some further measurements such an experiment permits a complete phenomenological analysis of reaction III including the determination of the ratio between the intensities of the two possible transitions $^1S_0 \rightarrow {}^3S_1$ and $^1D_2 \rightarrow {}^3S_1$, which correspond to the emission of mesons in the p-state. The experiments were carried out with the 6-meter synchrocyclotron of the Institute for Nuclear Problems of the Academy of Science of the USSR. The energy of the protons was (660 ± 3) MeV and the half width of the proton spectrum was $\pm$ 5 MeV. The scheme and the setting up of the spectrometer are then discussed.

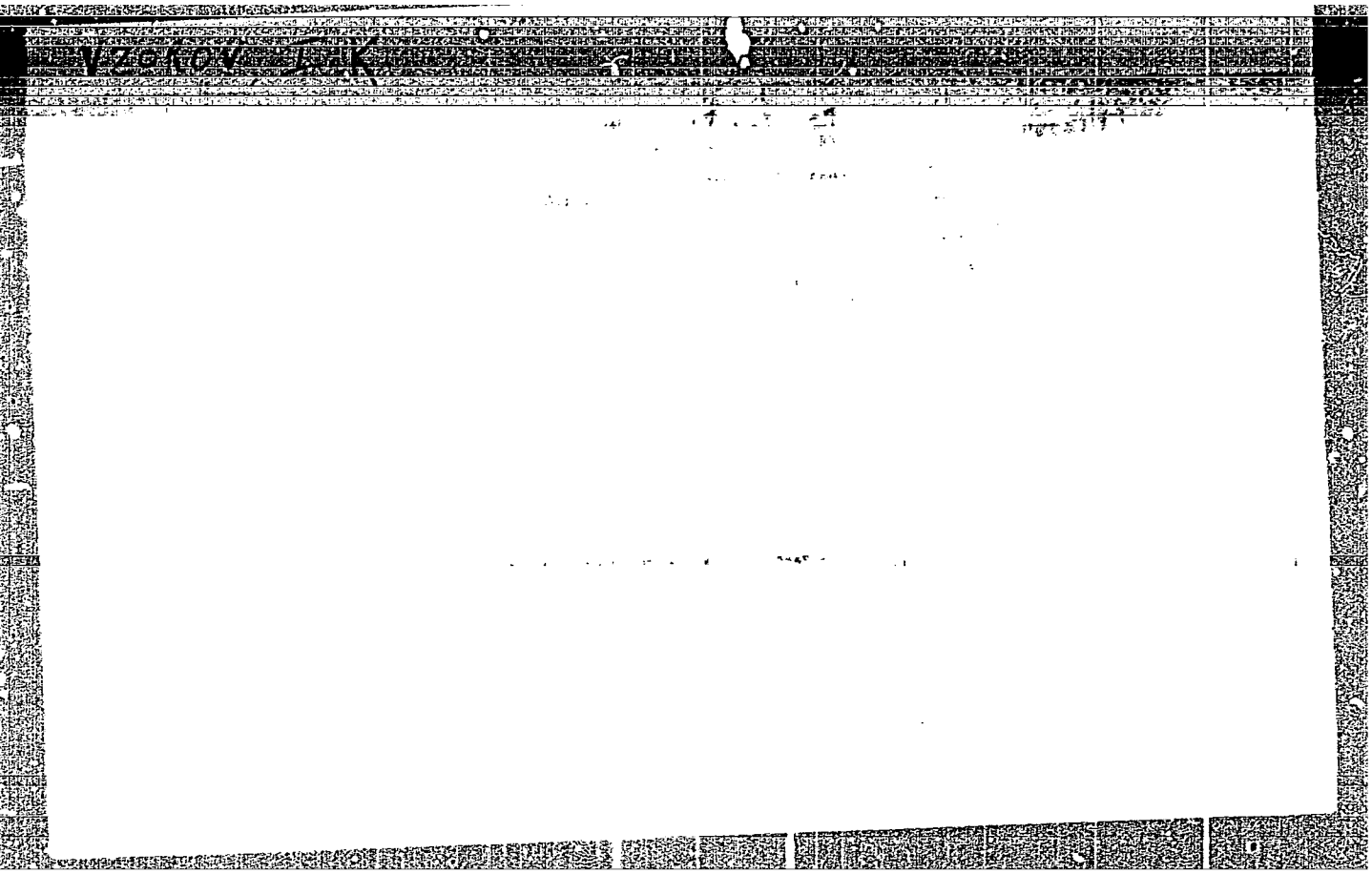
Dokl.Akad.Nauk,109, fasc.3, 499-502 (1956) CARD 2 / 2 PA - 1424

The relative momentum spectrum of the particles was measured by changing the magnetic field strength. The effect on hydrogen was determined from the difference of the yields of polyethylene- and carbon targets. The momentum spectrum of secondary protons and deuterons determined through an angle of 7° is shown in a diagram. The most intense peak at Hϱ = 4260.10^3 Gauss.cm corresponds to the protons elastically scattered on protons through an angle of 17° (in the center of mass system. The peaks at Hϱ = 4520.10^3 and Hϱ = 2880.10^3 Gauss cm correspond to the deuterons of reaction III scattered under 43° and 153,5° (in the center of mass system) respectively. The experimental and the computed location of the deuteron peaks with respect to the peak of the elastically scattered protons differ by less than 1%.

The continuous spectrum belongs to the secondary protons of the reactions I and II. Its upper limit is in agreement with the computed value (for the investigated reactions 3560.10^3 and 3590.10^3 Gauss.cm respectively). The spectrum of the secondary particles produced on the occasion of (p-p) collisions was also obtained at an angle of 12.2° towards the primary bundle. In this case the deuteron peaks were about Hϱ = 3220.10^3 and Hϱ = 3950.10^3 Gauss.cm. The form of the momentum spectrum of the secondary protons changes considerably with angular distribution. The protons with more than 250 MeV/c are emitted mainly towards the front and the rear, but protons with smaller momenta have a nearly isotropic distribution.

INSTITUTION: Institute for Nuclear Problems of the Academy of Science in the USSR.

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R001961420016-1"



VZOROV, I.K., MESHCHERYAKOV, M.G., NEGANOV, B.S., ZRELOV, V.P., SHABUDIN, A.F.

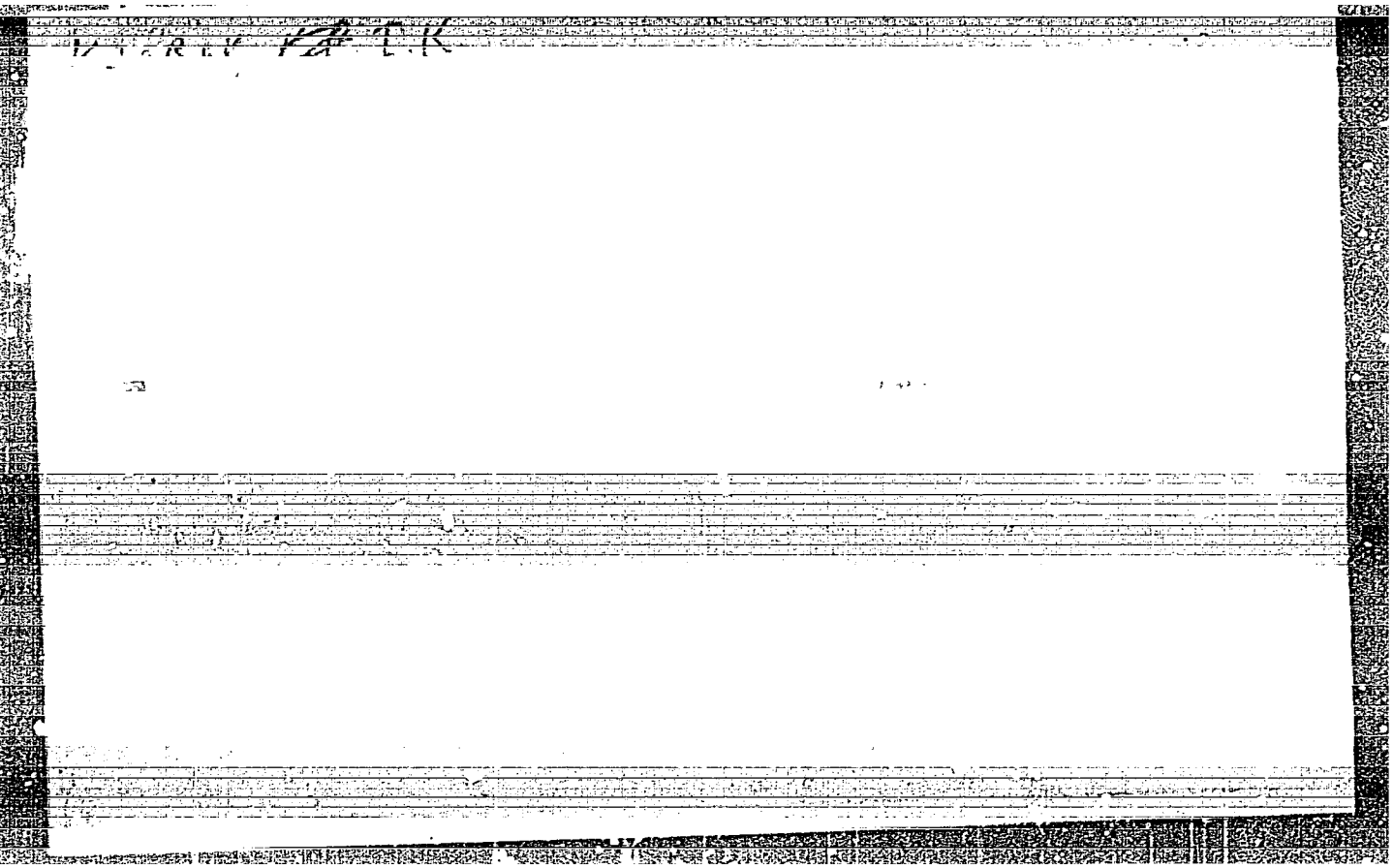
"Magnetic Analysis of the Reactions $pp \rightarrow np\pi^+$ (I), $pp \rightarrow pp\pi^0$ (II) and $pp \rightarrow d\pi^+$ (III) at an Energy of 660 MeV," paper presented at CERN Symposium, 1956, appearing in Nuclear Instruments, No. 1, pp. 21-30, 1957

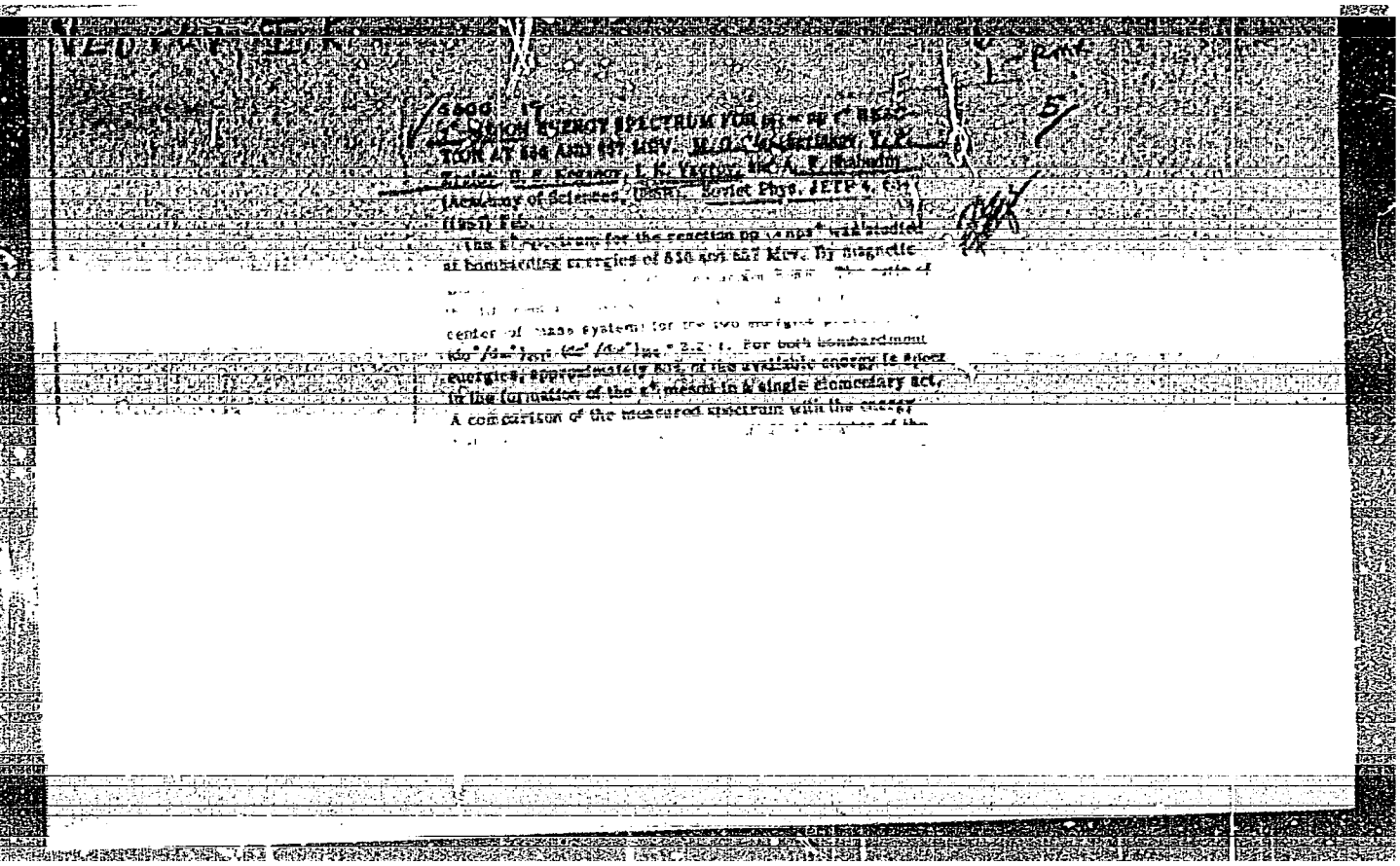
VZOROV I.

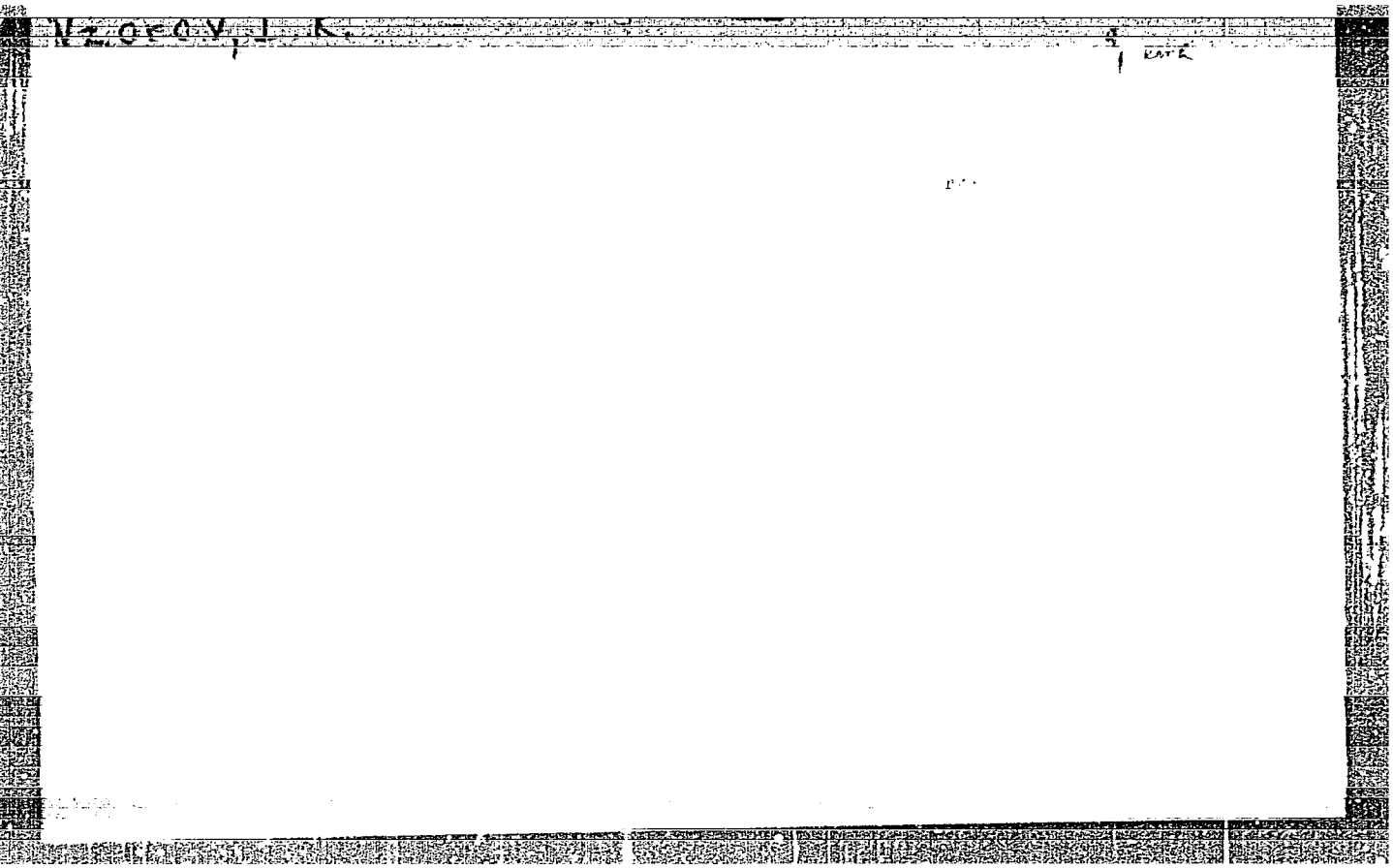
AZHGIROV, L., VZOROV, I., IRELOV, V., MESHCHERYAKOV, M., NEGANOV, B., and SHABUDIN, A.

"Forcing Deuterons from Nuclei of Li, Be, C, and O by 675 Mev Protons," (Vybivaniye Detronov Iz Yader Li, Be, C, i O, Protonami s Energiyev v 675 Mev), USSR, 1957, Reported 17 May 1957 at the Second Session of the Scientific Council of the United Institute of Nuclear Research.

Translation U-3,055,593, 22 Jan 58







VZOROV, I. K.

AUTHOR: Azhgirey, L.S., Vzorov, I.K., Zrelov, V.P., Meshcheryakov, M.G., Neganov, B.S., Shabudin, A.F. 56-5-19/46

TITLE: The Knocking Out of Deuteron from the Nuclei Li, Be, C and O by 675 MeV Protons (Vybivaniye deytronov iz yader Li, Be, C i O protonami s energiyey 675 MeV)

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol. 33, Nr 5, pp. 1185-1195 (USSR)

ABSTRACT: With the help of the magnetical analysis below 7,6°, with respect to the primary proton ray, the momentum spectrum of the charged partiole was recorded which is produced when deuterium, lithium, beryllium, carbon and oxygen are bombarded by 675 MeV protons. The occurrence of deuteron groups with an energy of ~ 600 MeV was observed for all five elements. In the case of deuterium the fast deuterons result from the elastic scattering of the protons by deuterons. In all other cases the production mechanism of the reaction must be ascribed to $p + (Z,A) \quad d + p + (Z - 1, A - 2)$. These reactions, therefore, correspond to the scattering of the protons by the quasi-deuteron groups within the target nucleus. The following differential cross sections were measured:

Card 1/2

1 The Knocking Out of Deuteron from the Nuclei Li, Be, C and O by 675 MeV Protons

56-5-19/46

	$\left(\frac{d\sigma}{d\omega}\right)$ in mb/ster.
d - p	0.55 ± 0.12
Li + p	2.9 ± 0.6
Be + p	2.2 ± 0.5
C + p	3.7 ± 0.8
O + p	4.6 ± 1.0

For the nuclei Li, Be, C and O the average motional energy of the quasideuteron groups could be estimated at 8, 11, 14 MeV. In the highly energetic part of the spectra no occurrence of tritium of importance could be observed. From the data obtained by experiment the conclusion may be drawn that interaction processes of three particles occur, which are connected with a great transfer of momenta. There are 6 figures, 3 tables, and 23 references, 4 of which are Slavic.

ASSOCIATION: United Nuclear Research Institute (Ob"yedinennyy institut yadernykh issledovaniy)
SUBMITTED: June 1, 1957
AVAILABLE: Library of Congress

Card 2/2

SOV/56-34-6-1/51

AUTHORS: Azhgirey, L. S., Vzorov, I. K., Zrelov, V. P.,
Meshcheryakov, M. G., Petrukhin, V. I.

TITLE: On Some Properties of the Processes of Production of Charged Pions on Carbon by Protons With the Energy 670 MeV (O nekotorykh svoystvakh protsessa obrazovaniya zaryazhennykh π-mezonov na uglerode protonami s energiyey 670 MeV)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958,
Vol 34, Nr 6, pp 1357-1366 (USSR)

ABSTRACT: The experiments carried out in this paper were carried out with the six-meter synchrocyclotron of the Ob"yedinennyy institut yadernykh issledovaniy (United Institute of Nuclear Research) in order to investigate the production of charged pions on carbon by protons with ~670 MeV. The energy spectra of the positive and negative pions were measured with a magnetic spectrometer which is described in a detailed manner. Then the procedure of the measurements is discussed. A table gives the values of $d^2\sigma^+/d\omega dE$ and $d^2\sigma^-/d\omega dE$ in the laboratory system. The spectra of the positive and negative pions

Card 1/3

On Some Properties of the Process of Production of Charged Pions on Carbon by Protons with the Energy 670 MeV

have a maximum near ~110 MeV. The medium energy of the positive and negative pions, respectively, is ~136 and ~126 MeV. Then the corresponding values are given for the center of gravity system. The interaction of a pion with a nucleon in the state T = J = 3/2 plays an essential rôle in the production of the majority of the positive pions in the nucleon-nucleon interactions. The observed spectra of the positive and negative mesons have a long "tail" which is directed towards the high energy side. The spectra of the positive and negative mesons were obtained until energies of nearly 400 MeV. In the center of gravity system, the differential cross sections of the productions of positive and negative mesons depend only little on the angle between the produced pions and the proton beam. 2) If this angle decreases from ~90° to ~ the ratio of the differential cross sections of the production of positive pions in processes going within the carbon nucleus and on free protons decreases from ~0,8 to ~0,5. The differential cross sections of the production of positive negative mesons amount to $(3,1 \pm 0,8).10^{-27}$ and $(1,0 \pm$ sterad. According to the measured ratio of the π^+ and π^- the inelastic collisions in the state with T = 0 play an

Card 1/3

On Some Properties of the Process of Production of Charged Pions on Carbon by Protons With the Energy 670 MeV

important rôle. The authors thank A. S. Kuznetsov for his participation in the construction of the electronic apparatus. There are 3 figures, 3 tables, and 14 references, 7 of which are Soviet.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (United Institute of Nuclear Research)

SUBMITTED: January 6, 1958

21(7) SOV/56-36-6-4/66

AUTHORS: Azhgirey, L. S., Vzorov, I. K., Zrelov, V. P., Meshcheryakov, M. G., Neganov, B. S., Ryndin, R. M., Shabudin, A. F.

TITLE: Interaction Between Protons and Atomic Nuclei at Energies of 660 Mev and the Intra-nuclear Distribution of the Nucleon Momenta (Vzaimodeystviye protonov s atomnymi yadrami pri energii 660 MeV i vnutriyadernoye raspredeleniye impul'sov nuklonov)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 6, pp 1631 - 1649 (USSR)

ABSTRACT: Apart from theoretical discussions, this very detailed paper above all deals with the momentum distribution in quasi-elastic proton-nucleon collisions, and gives a detailed description of the experiments carried out as well as a great number of experimental data concerning the angular distributions and energy spectra of secondary particles (mainly protons with energies of $\gtrsim$ 60 Mev) emitted at angles of 7, 12.2, 18, 24 and 30° in reactions between 660 Mev protons and nuclei of Be, C, Cu and U. Table 3 gives for all 4 elements the $d\sigma/d\omega$ measured for 8 different emission angles ϕ between 7 and 40°.

Card 1/4

Thus, the following was found for $\phi = 7^\circ$: $d\sigma/d\omega = (1.100 \pm 0.055).10^{-24} cm^2$/steradian, for 40° $(0.074 \pm 0.004).10^{-24} cm^2$/steradian. Figure 2 shows these results in form of a diagram. It is found that in the general sense, the dependence of $d\sigma/d\omega$ on A decreases with a decrease of ϕ. The 4 diagrams in figure 3 show the energy spectra of the charged secondary particles at 7°, the following figures each show (in 4 diagrams) the energy spectra for the other angles. At 7° the characteristic peak ($d^2\sigma/d\omega\, dE$ in $10^{-27} cm^2$/steradian.Mev is the ordinate) is narrow and is practically near 660 Mev; a second maximum is only vaguely discernible and a weak minimum can be observed only in the case of Cu at about 500 Mev. At 12.2° the peak is already broader and shifted somewhat towards lower energies; the minima are more marked and are at energy values of somewhat below 500 Mev. At 18° these peaks are still broader and are found already at energies of < 600 Mev; the minima are especially low in the case of Cu and U at about 400 Mev. At 24° the broad maxima (especially in the case of U)

are at about 500 Mev, the minima are distinctly observable at about 400 Mev; in the case of U the ordinate values are about $E < 200$ Mev above the maximum at $\sim$ 500 Mev. At 30^0 this development is more marked; the maxima are flat and are at about 400 Mev; Cu and U have very high ordinate values at low energies, which decrease to a minimum at about 300 Mev, after which they again increase somewhat and again decrease sharply towards zero with increasing energies. In general, the cross sections for the emission of such secondary particles increase with a decrease of the angle. Passing from high to low energies, the spectral regions of the investigated elements correspond to diffractional scattering of protons on nuclei (small angle region), single quasi-elastic proton-nucleon collisions, pion production on bound nucleons and intranuclear cascade processes, respectively. In chapter 5 of this paper the authors compare the experimental energy spectra for quasi-elastic proton-nucleon scattering with the calculated spectra (in momentum approximation under various assumptions with respect to the momentum distributions of the nucleons in the nucleus) (Figs

8 and 9). In the case of p-Be- and p-C-scattering agreement is found (between experiment and theory) when using a Gaussian momentum distribution having a 1/e-value at about 20 Mev, which is in keeping with the results obtained in Berkeley. The authors finally thank R. N. Fedorova and I. V. Popova for programming and carrying out calculations, and further also S. M. Bilen'kiy, N. P. Klepikov, L. M. Soroko and N. A. Chernikov for valuable discussions. There are 9 figures, 3 tables, and 25 references, 6 of which are Soviet.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: December 20, 1958

VZOROV, M.

4-4-3/22

SUBJECT: USSR/Bibliography

AUTHOR: Vzorov, M., Gurevich, N., Tolin, V., Gritchuk, A.

TITLE: New Publications (Vyshli iz pechati)

PERIODICAL: Znaniye - Sila, April 1957, #4, pp 3-4 (USSR)

ABSTRACT: The four authors review 4 books all dealing with reminiscences of Lenin. The author of the first book "Reminiscences of V.I. Lenin" is not indicated. A. Bezymenskiy is the author of the second book entitled "Encounters of Komsomol'tsy with V.I. Lenin" (Vstrechi komsomol'tsev s V.I. Leninym). The third book is written by V. Bonch-Bruyevich "V.I. Lenin in Petrograd and Moskva (1917-1920)" and the fourth one "Lenin's Youth" by N. Nechvolodova and L. Reznichenko.
The article contains 4 photos of the book covers.

ASSOCIATION: -

PRESENTED BY: -

SUBMITTED: -

AVAILABLE: Library of Congress

Card 1/1

ACC NR: AP6025664 SOURCE CODE: UR/0413/66/000/013/0131/0131

INVENTOR: Vzorov, M. I.; Romanov, A. S.

ORG: None

TITLE: An actuating valve. Class 47, No. 183552

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 13, 1966, 131

TOPIC TAGS: automatic pressure control, valve

ABSTRACT: This Author's Certificate introduces an actuating valve based on Author's Certificate No. 168096. Cabins do not have to be pressurized when control equipment or the "follower" unit go out of adjustment. The actuating valve has a unit which cuts in an evacuated bellows connected to the regulating spring by a lever set on a hinge. A spring loaded valve is mounted on this lever. This valve covers the channel passage which connects the primary valve cavity with the atmosphere when cabin pressure drops below the permissible minimum.

Card 1/2 UDC: 621.646 629.13.01/06

21

ACCESSION NR. AP

Perepleichikov, L. Ye.; Romanov, A. S.

TITLE Exhaust (relief) valve

SOURCE Byulleten' izobreteniy

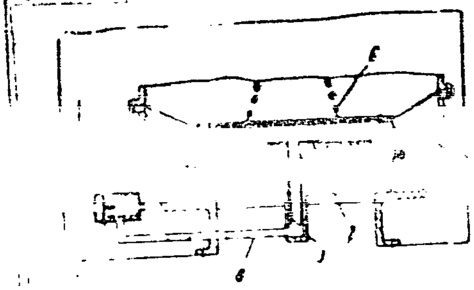
TOPIC TAGS: aircraft cabin equipment, valve

(relief) valve for the pressurized cabin of an air- depressurization of

is ... of the ... contains a shuttle valve

Card 1/2

L 36203-65
ACCESSION NR: AP5010128



Keys: 1 - "limp" membrane; 2 - rigid
...enter of the "limp" membrane
...alve joint...
valve membrane. 5 - ...
7 - shuttle valve; 8 - pipe

ASSOCIATION: ... komitet po aviatsionnoy tekhnike SSSR (Organization ... for Aviation Technology, SSSR)

SUBMITTED: 10Jun63

OTHER: 000

JPRS

NO REF SOV: 000

Card 2/2

ACC NR: AP6029950 SOURCE CODE: UR/0413/66/000/015/0127/0128

INVENTOR: Vzorov, M. I.; Romanov, A. S.; Yefimov, K. P.; Terenin, A. P.

ORG: none

TITLE: Actuating valve. Class 47, No. 184575

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 127-128

TOPIC TAGS: valve, actuating valve, aircraft cabin environment, aircraft cabin equipment, pressure regulator, hermetic seal

ABSTRACT: An attempt has been made to simplify the design and increase the reliability of an actuating valve for hermetic aircraft cabin previously described in Author Certificate No. 170256. In the improved valve, the pressure increment chamber of the air speed transmitter has a rigid center in the spring-loaded separating membrane which is connected with the rigid center of a 'limp' membrane;

UDC: 621.646
629.13.01/06

Card 1/2

ACC NR: AP6029950

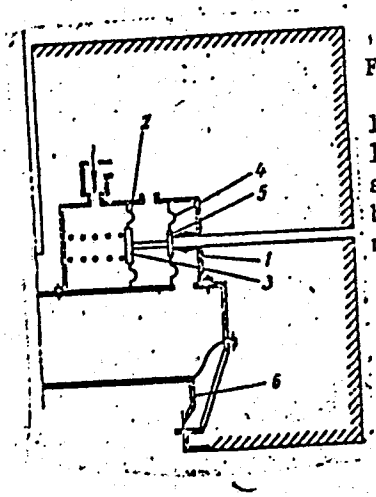


Fig. 1. Actuating valve

1 - Air speed transmitter; 2 - spring-loaded membrane; 3 - rigid center of the spring-loaded membrane; 4 - 'limp' membrane; 5 - rigid center of the 'limp' membrane; 6 - main valve.

this junction forms a venting valve connecting the cavity of the main valve with the atmosphere (see Fig. 1). Orig. art. has: 1 figure.

SUB CODE: 21/ SUBM DATE: 22Dec64

Card 2/2

ACC NR: AP6030628 SOURCE CODE: UR/0413/66/000/016/0125/0125

INVENTOR: Vzorov, M. I.; Perepletchikov, L. Ya.; Rozhin, D. P.

ORG: none

TITLE: A device for covering control valve ports. Class 47, No. 185162

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966, 125

TOPIC TAGS: pressure regulator, valve, cabin environment, spacecraft environment equipment

ABSTRACT: An Author Certificate has been issued for a device for covering control valve ports in the pressure control system of sealed aerospace-vehicle cabins during their landing on water. It consists of a gas tank, a line with a cock, and a check valve. For more dependable seal it includes an elastic float filled with compressed gas. Orig. art. has: 1 figure.

SUB CODE: 22, 13/ SUBM DATE: 09Jun65/

Card 1/1 UDC: 621.646.629.13.01/06

ACC NR: AP6035922 SOURCE CODE: UR/0413/66/000/020/0174/0174

INVENTOR: Barinov, V. S.; Vzorov, M. I.; Perepletchikov, L. Ya.; Terenin, A. P.

ORG: none

TITLE: Regulator for build-up of pressure in an aircraft's pressurized cabin. Class 47, No. 187466

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 20, 1966, 174

TOPIC TAGS: pressure, gas pressure, pressure compensator, pressure regulator

ABSTRACT: An Author Certificate has been issued for a device for limiting pressure build-up in a pressurized aircraft cabin, which contains a throttle and a spring-supported piston with a primary valve attached to it. To avoid a pressure surge in the pressurized cabin and eliminate autovibration of the primary valve, it is equipped with a unidirectional-motion damper, the spring-loaded rod of which is pressed to the primary valve. The inner space of the piston is connected through the throttle with the pressurization circuit, on which the regulator is mounted before the pressurized cabin. Orig. art. has: 1 figure. [WA-98]

SUB CODE: 01, 14/ SUBM DATE: 01Feb65/

Card 1/1 UDC: 621.646;629.13.01/06

ACC NR: AP6032526 (A) SOURCE CODE: UR/0413/66/000/017/0124/0124

INVENTOR: Vzorov, M. I.; Kritsyn, A. L.; Perepletchikov, L. Ya.

ORG: none

TITLE: Aircraft cabin pressure regulator. Class 47, No. 185649

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 17, 1966, 124

TOPIC TAGS: aircraft cabin environment, aircraft cabin equipment, ~~aircraft cabin pressure regulator~~, pressure regulator

ABSTRACT: The proposed aircraft cabin pressure regulating device contains a sensing element with spring which is adjusted by a regulating screw. In order to increase its reliability, locking element of the regulator is mounted on a flat spring which is fixed on the inner wall of the housing; this prevents the displacement of the locking element in relation to the seat during deformation of the sensing element (see Fig. 1). Orig. art. has: 1 figure.

UDC: 621.646
629.13.01/06

Card 1/2

ACC NR: AP6032526

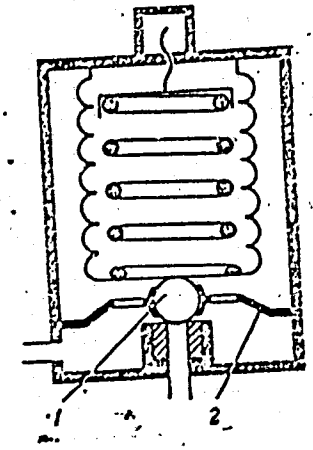
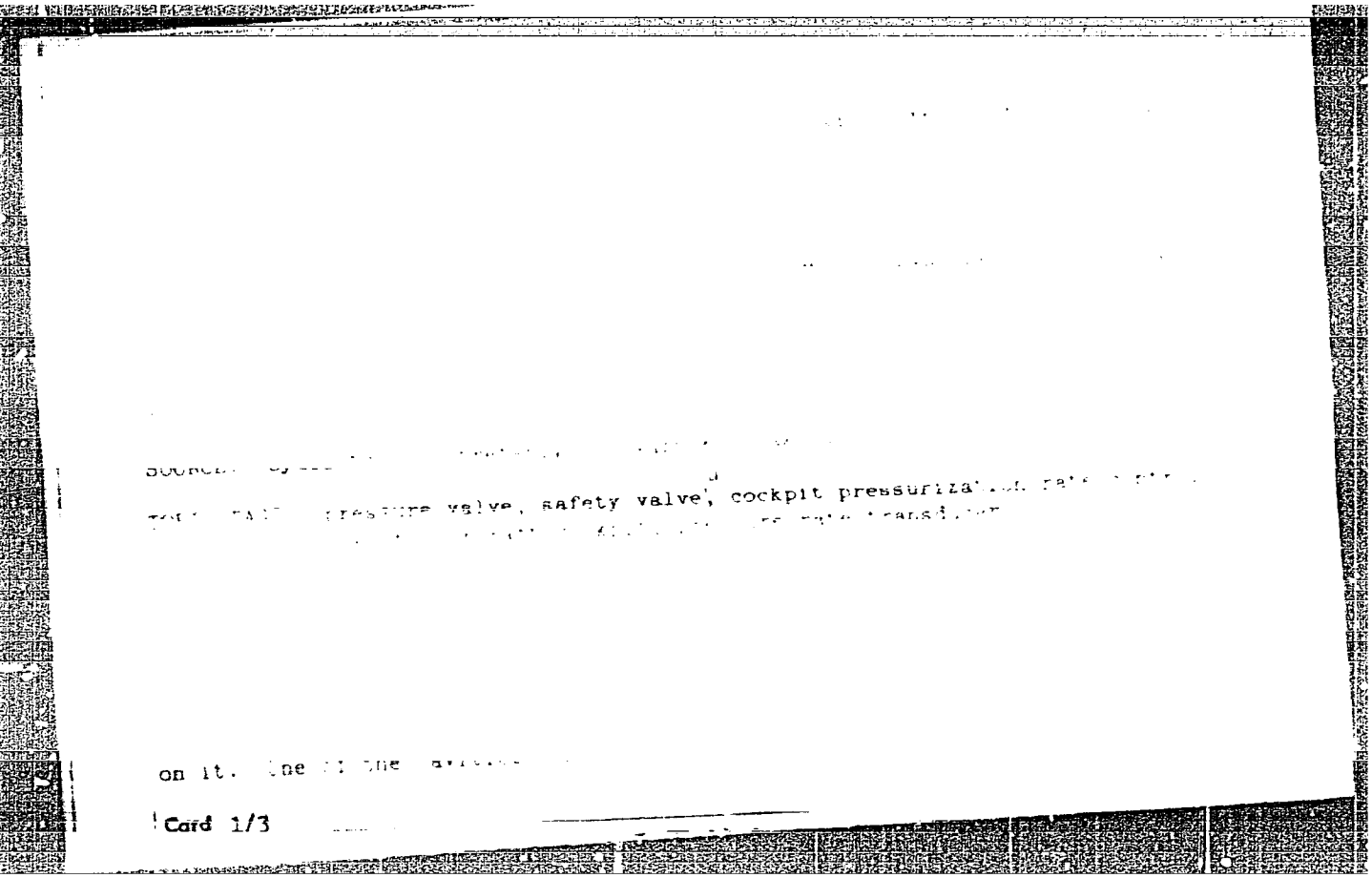


Fig. 1. Pressure regulator

1 - Locking element;
2 - flat spring.

SUB CODE: 01, 14/ SUBM DATE: 15Jun65/

Card 2/2



pressure valve, safety valve, cockpit pressuriza

on it. One

Card 1/3

L 63571-65

ACCESSION NR: AP5015544

...connects to the cockpit through a ...

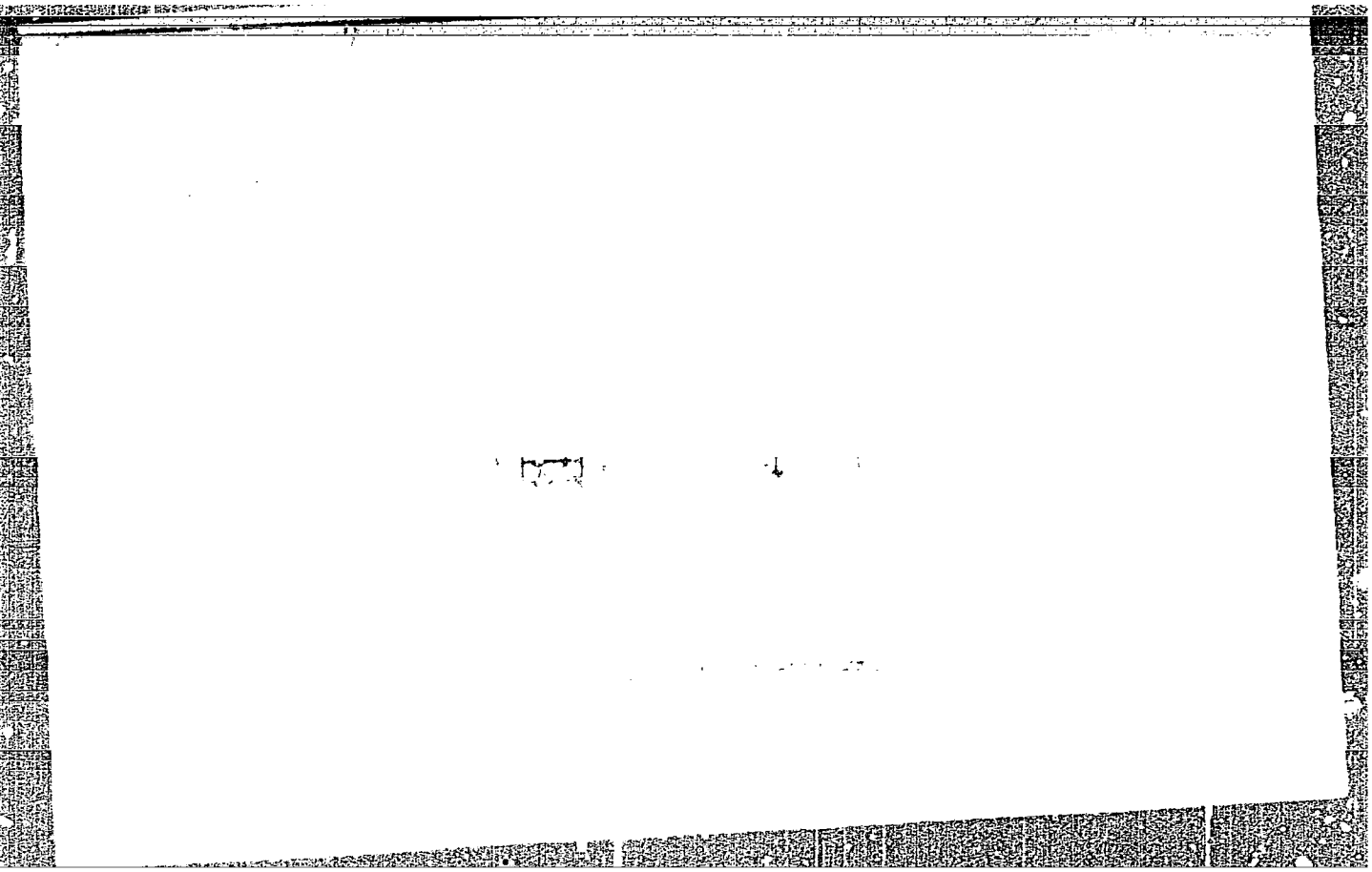
...when pressure on the transducer ... (See Fig. 1 of Enclosure.) Orig. art. has: 1 figure.

...point.

...Organization of the State Committee ... Technology ...

SUBMITTED: 20Aug64 ENCL: 01 SUB CODE: AC, IE

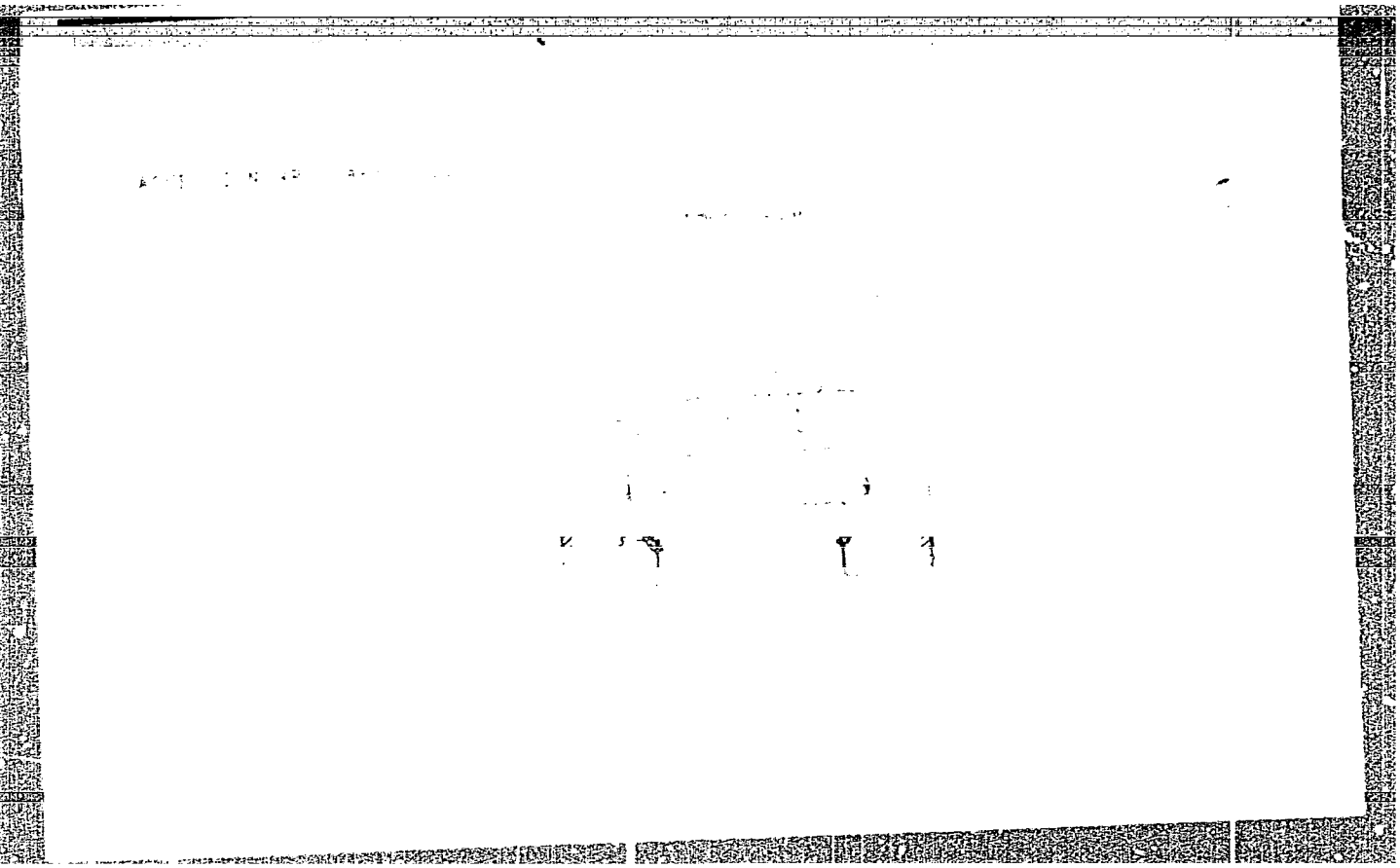
NO REF SOV: 000 OTHER: 000 ATD PRESS: 4020



L 22393-65 EWT(1)/EWG(v)/T-2 Pe-5

ABSTRACT: This Author's Certificate introduces a method for pressurizing a hermet- [illegible] ... and the proc [illegible]

NO REF SOV: 000



APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R001961420016-1"

TOPIC TAGS: pneumatic device, valve

ACCESSION NR: [illegible]

AUTHOR: Klimov, L. Ya.; Vzorov, M. I.; Kas'kov, S. V.

TITLE: [illegible] trol, pressurized cabin, airplane

[illegible] safety valve for pressurized air-

Card 1/2

L 35001-55
ACCESSION NR: AP5008569

ENCLOSURE: 01

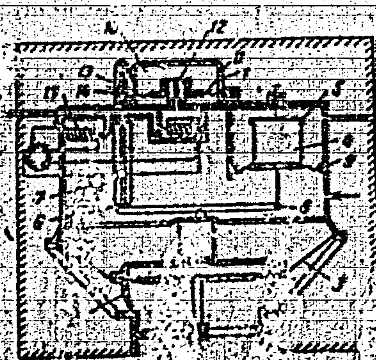


Fig. 1. Safety valve for [illegible] aircraft cabin

1 - Body; 2 - m[illegible] valve; [illegible] - s[illegible]g-l[illegible]d membrane; [illegible]
4 - gage pressu[illegible] [illegible] - cont[illegible] [illegible] 6 - [illegible]ull valve;
7 - spring; 8 - [illegible] [illegible] membr[illegible] [illegible] pressure drop re[illegible]
regulator; 11 - spring-loaded membrane; 12 - [illegible]le valve;
13 - ne[illegible]le [illegible] valve; 14 - [illegible] [illegible]old val[illegible]

Card 2/2

ACC NR: AP7005673 SOURCE CODE: UR/0413/67/000/002/0143/0143

INVENTOR: Vzorov, M. I.; Kritsyn, A. L.

ORG: none

TITLE: Device for the forced closing of the control valves of the pressure regulating system for pressurized aircraft cabins. Class 47, 190746

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 2, 1967, 143

TOPIC TAGS: pressure regulator, ~~automatic pressure sensor~~, aircraft ~~pressure~~ cabin equipment, valve, pneumatic device, spacecraft carried equipment

ABSTRACT: The proposed shut-off device consists of a housing with a nozzle and a check valve, a spring-loaded membrane with a rigid center (the control valve is attached to this center), and a repeater unit which is connected

UDC: 621.646
629.13.01/06

Card 1/2

ACC NR: AP7005673

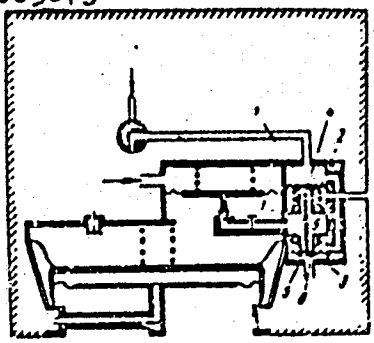


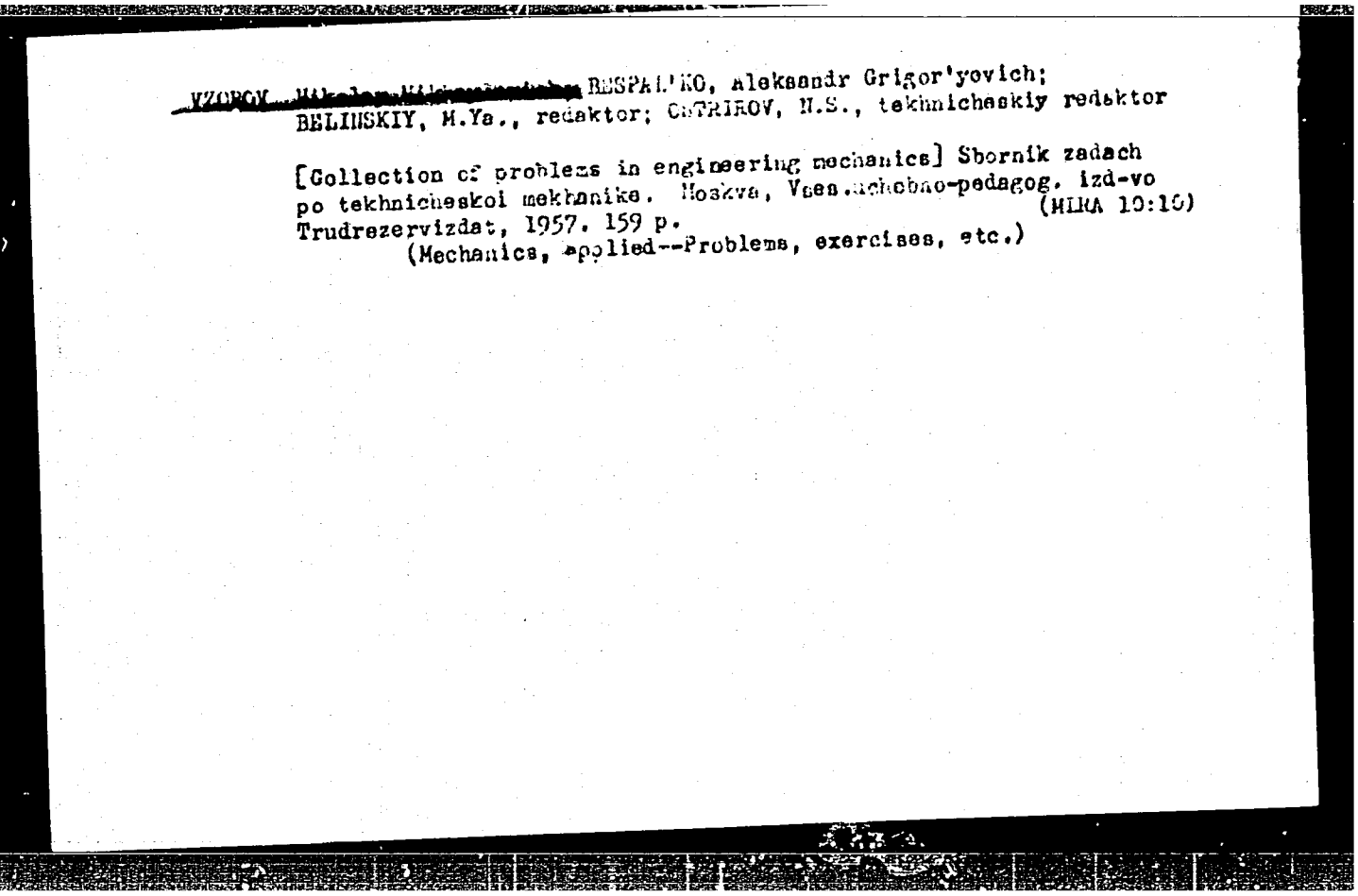
Fig. 1. Forced shut-off device

1 - Double valve; 2, 3 - membranes; 4, 5 - rigid centers; 6 - center chamber; 7 - chamber above membrane; 8 - chamber below membrane.

to a spring-loaded membrane which has a rigid center, a needle valve, and a pneumatic unit. To increase the reliability of the device, its pneumatic unit is provided with a double by-pass valve in which the rigid centers of the elastic membranes serve as the locking elements. These membranes divide the cavity of the pneumatic unit into three chambers. The center chamber is connected with the chamber above the membrane and to a vent to the atmosphere, while the chamber below the membrane is connected to the pressurized cabin. Orig. art. has: 1 figure. [TN]

SUB CODE: 01,13/SUBM DATE: 26Oct65/ ATD PRESS: 5117

Card 2/2



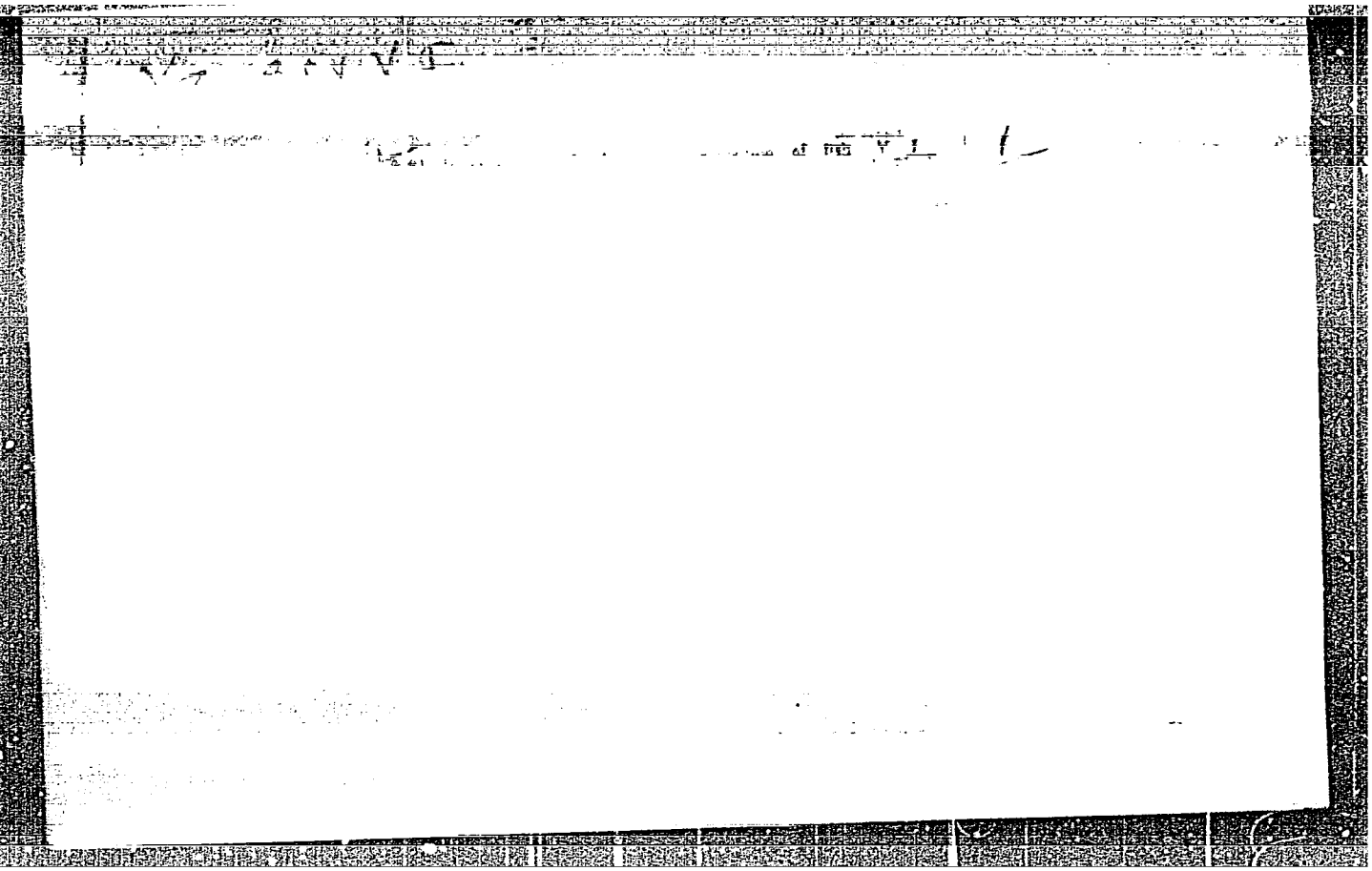
VZOROV, [redacted] BESPAL'KO, Aleksandr Grigor'yevich; BELINSKIY, M.Ya., redaktor; CHETIROV, N.S., tekhnicheskiy redaktor

[Collection of problems in engineering mechanics] Sbornik zadach po tekhnicheskoi mekhanike. Moskva, Vses.uchebno-pedagog. izd-vo Trudrezervizdat, 1957. 159 p. (MLRA 10:10)
(Mechanics, Applied--Problems, exercises, etc.)

VZOROV, N.M.

Investigating crankgears. [Trudy] M V T U no.65:59-69 '55. (MLRA 9:8)

(Cranks and crankshafts)



VZOROZ, V. I.

"Species of Bacteriosis of Crop Plants and Their Geographical Distribution in the U. S. S. R.," Itogi Nauchno-Issledovatel'skikh Rabot Vsesoiuznogo Instituta Zashchity Rastenii za 1936 Goda, Part 3, 1938, pp. 40-45. 423.92 I5h1

So: Sira - Si - 90 - 53, 15 Dec. 1953

VZOROV, V. I.

"Species and Distribution of Bacteriosis of Agricultural Plants in the Soviet Union," Izvestiia Rostivskio Stantsii Zashchity Rastenii, No. 9, 1938, pp. 87-92. 464.9 R73

So: Sira - Si - 90- 53, 15 Dec. 1953

VZOROV, Vladimir Ivanovich; KOLCHINSKAYA, N.A., red.; GROMOV, A.S., tekhn. red.

[Guide to fish and fishery products]Tovarovedenie ryby i rybnykh tovarov. Moskva, Gostorgizdat, 1962. 301 p. (MIRA 15:10)

(Fishes) (Fishery products)

Withdrawn 1965

POKROVSKAYA, M.P.; KAGANOVA, L.S. [deceased]; VZOROV, V.I. [deceased]; KOCHER'YAN, C.N.; GRIBANOVA, K.V.; KOTLYAROVA, R.I.; GUTOROVA, N.M.

Anabiosis as a factor in preserving the useful properties of microorganisms for a prolonged period. Trudy IEMG no.7:70-95'60 (MIRA 16:8)

(CRYPTOBIOSIS) (MICROORGANISMS—DRYING)

ISACHENKO, A.V.; VZOROV, V.V.

Heat and mass transfer in the evaporation of water from a porous wall. Inzh.-fiz. zhur. 7 no.2:117-119 F '64. (MIRA 17:2)

1. Energeticheskiy institut, Moskva.

88236

S/096/61/000/003/007/012
E194/E155

26.2181
11.9200

AUTHORS: Isachenko, V.P., Candidate of Technical Sciences, and Vzorov, V.V., Engineer

TITLE: Mass Transfer During the Evaporation of Water From a Porous Wall in a Flow of Air

PERIODICAL: Teploenergetika, 1961, No. 3, pp. 57-61

TEXT: An article by the same authors in Teploenergetika No.1 of 1961 described heat transfer during the evaporation of water from a porous wall in a flow of air. The present article gives the corresponding results for mass transfer. The initial and final humidities of the air were determined with wet- and dry-bulb thermometers. It is shown that since the tests take place under adiabatic conditions of evaporation the results may be expressed in the form:

$$\pi_D = f(Re, K, \varepsilon_g), \quad (4)$$

where $K = r/[c_p(t_g - t_w)]$, where t_g and t_w are the gas and water temperatures respectively and ε_g is the partial pressure

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Mass Transfer During the Evaporation of Water from a Porous Wall in a Flow of Air

of the gas (air). In the work previously mentioned the tests were made with a porous metal plate which formed the bottom wall of a duct of section 100 x 10 mm. In the tests the rate of air flow ranged from 9 to 115 m/sec and the temperature from 12 to 140 °C. It is considered that the greatest error in the determination of Nu_D (the Nusselt diffusion criterion) did not exceed ± 6%. The results show that changes in the mass-transfer coefficient along the surface are analogous with changes in heat-transfer coefficient. Test results are plotted in Fig.3 in the form $\pi_D K^{0.6} = f(Re)$

to which the following expression corresponds:

$$Nu_D = 65 \cdot 10^{-4} Re^{0.8} \pi_D^{-1} K^{-0.6} \qquad (6)$$

The results are discussed at some length and compared with those of other authors and the following general conclusions are reached.

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Mass Transfer During the Evaporation of Water from a Porous Wall in a Flow of Air

The development of the process of mass transfer along a surface of evaporation is qualitatively analogous with the development of the process of heat transfer uncomplicated by mass transfer. Over the entire porous plate the mean value of mass transfer is proportional to the Reynolds criterion to the power of 0.8. Both heat- and mass-transfer depend on a number of specific criteria which allow for special features of the combined process of heat and mass transfer. The criterial equations given in the article describe fairly accurately the mean value of mass transfer on water evaporation over the porous plate. In a small initial section of the porous plate under conditions of smooth laminar flow the development of the process of mass transfer requires a more complicated expression than that over the rest of the surface of evaporation, and it is not yet possible to describe the two relationships by a single equation.
There are 7 figures and 6 Soviet references.

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Mass Transfer During the Evaporation of Water from a Porous Wall in a Flow of Air

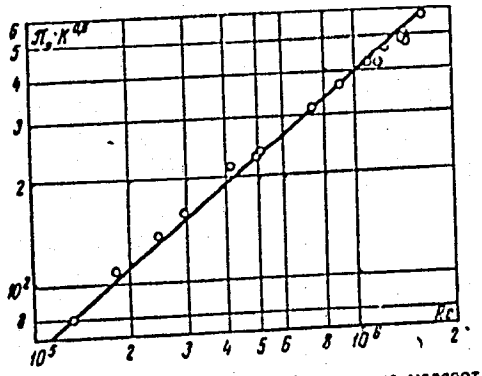

Fig.3

Рис. 3. Зависимость средней по всей пластине массоотдачи от числа Re.

ASSOCIATION: Moskovskiy energeticheskiy institut
(Moscow Power Engineering Institute)

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ISACHENKO, V.P., kand.tekhn.nauk; VZOROV, V.V., inzh.

Mass transfer in the evaporation of water from a porous wall surrounded by air. Teploenergetika 8 no.3:57-61 Mr '61. (MIRA 14:9)

1. Moskovskiy energeticheskiy institut.
(Mass transfer) (Steam)

ISACHENKO, A.V.; VZOROV, V.V.

Heat and mass transfer in the evaporation of water from a porous wall. Inzh.-fiz. zhur. 7 no.2:117-119 F '64. (MIRA 17:2)

1. Energeticheskiy institut, Moskva.

ISCHENKO, V.P., kand.tekhn.nauk; VZOROV, V.V., inzh.; VERTOGRADSKIY, V.A.

Heat transfer in the evaporation of water from a porous wall swept by air. Teploenergetika 8 no.1:65-72 Ja '61. (MIRA 14:4)

1. Moskovskiy energeticheskiy institut.
(Heat—Transmission)

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17.4430
11.9200

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E194/E184

AUTHORS: Isachenko, V.P., Candidate of Technical Sciences, Vzorov, V.V., Engineer, and Vertogradskiy, V.A., Engineer

TITLE: Heat Transfer During the Evaporation of Water from a Porous Surface in a Flow of Air

PERIODICAL: Teploenergetika, 1961, No. 1, pp. 65-72

TEXT: Combined processes of heat and mass transfer are frequently encountered in practice. The conditions of simultaneous heat and mass transfer are closely associated with hydrodynamic conditions. The interrelationship of the three processes of material and energy transfer make study of the effect particularly complicated. Theoretical and experimental work which has been done hitherto has revealed the general outlines of the mechanism of combined processes of heat and mass transfer during the evaporation of liquid in a flow of gas. However, information, and particularly quantitative information, is still incomplete and accordingly difficulties arise in practical calculations. There are differing views on the selection of systems of criteria for

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Heat Transfer During the Evaporation of Water from a Porous Surface in a Flow of Air

describing the processes. It is accordingly difficult to rely on particular criterial equations. No study has been made of the changes in heat and mass transfer along a surface of evaporation. The tests described in this article were made with the above circumstances in mind. The metal porous material used was made by powder metallurgy methods and the pore volume was 40% of the total volume. The porous sheets were 3.8 mm thick. The working duct was 10 mm high and 100 mm wide. The porous sheet was fixed to the lower wall and was divided up into a number of separate lengths by barriers. The section lengths ranged from 24 to 64 mm. It was found that the entire working surface of 100 x 258 mm^2 exposed to air flow was active. The measurement arrangements are described, provision being made to measure flow and temperature at appropriate places. Air was delivered to the apparatus from a compressor, and was suitably cleaned, dried and measured. The radiation coefficients of the materials used were studied and data obtained for the degree of blackness of the porous material are

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Heat Transfer During the Evaporation of Water from a Porous Surface in a Flow of Air

plotted in Fig.2. It will be seen that the degree of blackness of the dry material drops with increasing temperature but the degree of blackness of the moist material is practically constant at 0.94. The porous material used had fairly high hydraulic resistance and the method by which it was determined is explained. Various preliminary tests that were made are described. A formula is given by which convective heat transfer coefficients were calculated. Heat balance analysis showed that the experimental conditions were near to adiabatic, the water being evaporated only by heat obtained from the gas. Radiant heat transfer did not exceed 3%. As the processes of heat and mass transfer are interrelated this circumstance should be expressed in the selection of systems of criteria of similarity describing the process. A system of criteria derived by L.D. Berman (Teploenergetika, 1955, No. 8) is given in expression (1): it gives the Nusselt number as function of the Reynolds number, Archimedes number, Prandtl number, π_w a criterion characterising the transverse flow of steam, and

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the ratio of the specific heats of steam and steam-gas mixture. As the present tests were made with constant values of Prandtl number and specific heat ratio, these factors were not considered. The test conditions and results are then described. The speed and temperature of air flow ranged from 9 to 115 m/sec and from 12 to 140 °C, and the mean temperature head from 6 to 78 °C. The Reynolds criterion ranged from 131 000 to 1 650 000. It was calculated that the greatest possible error in determination of the Nusselt number did not exceed ± 6%. The curves of Fig.3 show changes in the mean heat transfer coefficients along the porous sheets as obtained in different tests. Consideration of the curves shows that mixed flow conditions occurred during the tests, turbulent flow commencing only at some distance from the front edge of the porous strip. The mixed flow conditions undoubtedly result from the good inlet conditions. It was difficult to determine the position of commencement of turbulent flow, but to establish the upper limit of heat and mass transfer coefficient in

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turbulent flow some tests were made with special turbulators. The results are also plotted in Fig.3. The test results could not be plotted in the form of $Nu = f(Re)$, but it was found that Re should be raised to a power of about 0.8. The results depended on the temperature level; the greater the air temperature the less the value of the Nusselt criterion. However, the mean heat transfer over the whole surface of the strip may be described by the following expression:

$$Nu = 1.6 \cdot 10^{-3} Re^{0.8} \left(\frac{\mathfrak{K}_w}{Re^{0.8}}\right)^{-\frac{2}{3}} \qquad (2)$$

Thus, other things being equal, the heat transfer is less the greater the cross flow ($\mathfrak{K}_w$). This conclusion is in qualitative agreement with other published work. The power to which $\mathfrak{K}_w$ is raised is also in agreement with other published works.

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As the tests were carried out under adiabatic conditions and at practically constant air pressure, the influence of mass exchange on heat exchange may be allowed for by introducing a further criterion into the criterial equation, and Fig.4 shows a graph of

$$\frac{Nu}{Re^{0.8}} = f(K)$$

It is found that $Nu/Re^{0.8}$ is proportional to K to the power 0.4. In the graph of Fig.5, $Nu/K^{0.4} = f(Re)$. The experimental points lie fairly closely to the straight line with a slope of 0.8 and accordingly the following formula is recommended for the mean heat transfer over the whole porous plate:

$$Nu = 4.55 \cdot 10^{-3} Re^{0.8} K^{0.4} \qquad (3)$$

There are 5 figures and 12 references: Soviet, though one is presumably translated from English.

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Heat Transfer During the Evaporation of Water from a Porous Surface in a Flow of Air

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